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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,787	01/14/2002	Atsushi Saitoh	P/1071-1511	3028

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EXAMINER

LEE, BENNY T

ART UNIT

PAPER NUMBER

2817

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Please find below and/or attached an Office communication concerning this application or proceeding.



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SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.

EXAMINER	
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DATE MAILED:

This is a communication from the examiner in charge of your application.

COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☒ Responsive to communication filed on 7 July 2003 ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 7 days from the date of this letter.  
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☒ Notice of References Cited by Examiner, PTO-892.
2. ☐ Notice re Patent Drawing, PTO-948.
3. ☒ Notice of Art Cited by Applicant, PTO-1449
4. ☐ Notice of Informal Patent Application, Form PTO-152
5. ☐ Information on How to Effect Drawing Changes, PTO-1474
6. ☐

Part II SUMMARY OF ACTION

1. ☒ Claims 1-15 are pending in the application.  
Of the above, claims 2, 3, 8-15 are withdrawn from consideration.
2. ☐ Claims have been cancelled.
3. ☐ Claims are allowed.
4. ☒ Claims 1, 4-7 are rejected.
5. ☐ Claims are objected to.
6. ☒ Claims 1-15 are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings which are acceptable for examination purposes until such time as allowable subject matter is indicated.
8. ☐ Allowable subject matter having been indicated, formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on                     . These drawings are: ☐ acceptable; ☐ not acceptable (see explanation).
10. ☐ The ☐ proposed drawing correction and/or the ☐ proposed additional or substitute sheet(s) of drawings, filed on                      has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed                     , has been ☐ approved. ☐ disapproved (see explanation). However, the Patent and Trademark Office no longer makes drawing changes. It is now applicant's responsibility to ensure that the drawings are corrected. Corrections MUST be effected in accordance with the instructions set forth on the attached letter "INFORMATION ON HOW TO EFFECT DRAWING CHANGES", PTO-1474.
12. ☒ Acknowledgment is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☒ been received ☐ not been received  
☐ been filed in parent application, serial no.                     ; filed on                     .
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

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Applicant's election with traverse of Species I, claims 1, 4-7 in Paper No. 10 is acknowledged. The traversal is on the ground(s) that species II being directed to the array of ground vias should not be separated from species I which is directed to the line of ground vias. Also, it has been argued that species V and VI should not be separate species in view of the lack of any indicated patentably distinct features therebetween. This is not found persuasive because in general, applicants' assertions do not rise to the level necessary to establish that one or more non-elected species are considered to be patentably obvious variations over the elected species.

In particular, note that species I and II are not obvious variants of each other in that given a line of vias would not have lead one to find that an array of vias would have been an obvious variant of the line of vias. As for the patentable distinctness between species V and VI, note that a comparison of the waveguides of Figs. 9A, 9B and Figs. 11A, 11B indicates that the protruding portions are arranged (i.e. in Figs. 9A, 9B on top of a substrate; Fig. 11A, 11B, splits the substrate) such that they are not obvious variants to one of ordinary skill in the art.

The requirement is still deemed proper and is therefore made FINAL.

Claims 2, 3, 8-15 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim.

Applicant timely traversed the restriction (election) requirement in Paper No. 10.

The disclosure is objected to because of the following informalities: Page 1, lines 15, 21 and page 2, line 2, note that "example" should be deleted at each occurrence as being unnecessary. Page 2, lines 6, 9, note that "causing" should be rewritten as --resulting in-- for a

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proper characterization; line 10, note that "in" should be rewritten as --compared to-- for a proper characterization. Pages 2-5, note that the "summary of the invention" should be rewritten such as to be reflective of the elected species (i.e. reference to non-elected species should not be included therein). Page 6, lines 3, 4, note that "6A, 6B and 6C" should be rephrased as --6A and 6B-- and --Fig. 6C is-- should precede "an example" as a proper characterization. In the replacement paragraph to page 6, lines 12, 13, note that "10A to 10D" should be rephrased as --10A, 10B, 10C, 10D-- for a consistent description. Page 6, line 20, note that --DETAIL-- should precede "DESCRIPTION" and --PREFERRED-- should precede "EMBODIMENTS" for a proper characterization. Page 7, line 7, note that --(see Fig. 1B)-- should follow "3"; line 11, note that "the" should be rewritten as --As shown in Fig. 1B, the-- for a proper characterization; line 20, note that --as depicted in Figs. 2A, 2B-- should follow "construction" for a proper characterization. Page 8, line 23, note that --(see Fig. 3B)-- should follow "W" for a proper characterization. Page 9, lines 15, 17, note that --4-- should follow each occurrence of "holes". Page 10, line 5, note that --as shown in Fig. 6A-- should follow "2.0 mm"; line 7, note that "dimensions of the other portions" should be explicitly described for "Fig. 6B". Page 11, lines 10-13 and page 14, lines 14-16, note that --reference number(s)-- should be added prior to each number of the indicated element. Page 11, lines 10-13, note that for each element indicated, the figures in which the indicated element actually appears should be specified (e.g. substrate 2 appears in Figs. 9A, 9B, 10B to 10D--; holes 104 appear only in --Fig. 10C--; etc). Page 13, line 25, note that --(see Fig. 10C)-- should follow "104" for consistency. Page 14, line 1, note that --

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(see Fig. 10D)-- should follow "4" for consistency. Page 15, lines 13, 15, 18, 24 and page 16, line 6, note that "1" should be deleted as being unnecessary. Page 15, lines 15, 24, note that "the figure" should be rephrased as --Figure 12-- for a proper description. Page 15, line 20, note that "Fig. 10" should correctly be --Fig. 12--. In the replacement paragraph to page 15, line 24, 12th line therein, is reference to "not shown in Figs. 9A and 9B" a correct description?

Appropriate correction is required.

The disclosure is objected to because of the following informalities: Note that the following reference labels need explicit description relative to the corresponding figure descriptions: Fig. 1B (Px); fig. 2A (3); figs. 3A, 3C, 7, 8 (4); fig. 4A, 4B (1).

Appropriate correction is required.

The drawings are objected to because of the following: In Fig. 3B, reference label --2-- needs to be provided; In Fig. 6B, note that dimensions for the diameter and pitch of the through holes need to be provided such as to be commensurate with the specification description; In Figs. 9A, 9B, note that width --W-- needs to be labeled; In Fig. 10D, reference label --3b-- needs to be provided; In Fig. 12, note that "DIODES MIXER" should be rephrased as --TWO DIODE MIXER-- for a proper characterization. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

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Claims 1, 4-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, note that it is unclear the limiting relationship of “both of the surfaces” to the earlier recited “at least one of the surfaces”. Also, it is unclear the relationship of “the outer surface” of the “protruding portion” to the earlier recited “at least one of the surfaces”.

In claims 4-7, note that the comparison of various dimensional characteristics to “half the wavelength in the dielectric plate” does not make sense since “wavelength” has to be associated with a particular frequency signal. Clarification is needed.

The following claim have been found objectionable for reasons set forth below:

In claim 1, line 4, note “form” should be rewritten as --define--; lines 5, 8, note that “formed” should be rewritten as --disposed--.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

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the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchimura et al in view of Saitoh.

Uchimura et al (fig. 1) discloses a transmission line assembly comprising laminated dielectric layers (1a, 1b, 1c) defining a dielectric plate (1) covered by conductive electrode layers (2, 3). A plurality of via holes (4) are arranged in two parallel rows to define with the conductive layers a waveguide region (5) there within. Moreover, note that the pitch © between via holes is less than one-half wavelength to provide a desired shielding effect. Moreover, note that thickness (a) of the dielectric plate can be selectively chosen to vary from the range of  $b/2$  to  $2b$ , where  $b$  is the spacing between the parallel rows of vias. Uchimura et al differs from the claimed invention in that the dielectric plate does not include a continuous protrusion to from a convex section.

Saitoh (fig. 3) discloses a waveguide assembly comprised of laminated dielectric layers (3, 4) sandwiched between conductive electrode plates (1, 2). Note in particular that the propagating area of the waveguide includes a convex shape protrusion from the dielectric layers.

Accordingly, it would have been obvious to have modified the waveguide region (5) of Uchimura et al to have been a region with a convex protruding dielectric shape such as taught by Saitoh. Such a modification would have been obvious since the propagating/non-propagating

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areas as configured in Saitoh would have been compatible with the waveguide region (5) and the non-propagating region outside of shielding vias (4). Moreover, in view of the range of thickness (a) in Uchimura et al (i.e. a is between  $b/2$  to  $2b$ ), this suggests that a protruding shape waveguide would have obviously been consistent with such a range. Finally, as explicitly suggested at col. 8, ls 3-5, the waveguide shape need not be limited to being rectangular, thereby obviously suggesting that a protruding shape would have been usable. Also, note that in view of selectability of the thickness of the waveguide, obviously at some value, the thickness and the spacing between the row of vias would have met the wavelength criteria as recited in claims 4, 6, 7.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yamashita et al discloses a transmission line with a protrusion and rows of via holes.

Any inquiry concerning this communication should be directed to Benny Lee at

telephone number 308-4902.



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ART UNIT 2817  
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09/10/03